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Set	Items	Description
S1	295938	SLURRY OR SUSPENSION()MIXTURE OR SLUDGE OR DRILLING()FLUID
S2	209533	(OIL OR GAS OR PETROLEUM OR PETRO)(2N)WELL?
S3	4511156	WITHOUT OR DOESN()T OR NO
S4	199	SUSPENSION()AGENT
S5	200	SET()RETARDER
S6	1244432	CERAMIC OR GLASS
S7	329254	PLASTICITY OR PLASTICI?ER OR THERMOPLASTIC?
S8	488539	ADDITIV?
S9	54783	MICRO() (SPHER? OR BEAD? OR PARTICLE?) OR MICROSPHERE? OR M- ICROBEAD? OR MICROPARTICLE?
S10	6575	RETARDER OR SETRETARDER OR RETARDED(2N)CEMENT
S11	305	S1 AND S9
S12	1	S11 AND S7 AND S10
S13	48	S11 AND (S7 OR S8 OR S10)
S14	0	S12 NOT PD=>20030822
S15	0	RD(unique items)
S16	40	RD S13 (unique items)
S17	18	S11 AND (S7 OR S10 OR RETARD?)
S18	16	S17 NOT PD=>20030823
?		

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Karen Lehman EIC 3600 02-Aug-04

18/7/1 (Item 1 from file: 6)  
DIALOG(R)File 6:NTIS  
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1959094 NTIS Accession Number: DE96007741

**Recent advances in the development of lightweight CO(sub 2)-resistant well cements**

Kukacka, L. E. ; Sugama, T.  
Brookhaven National Lab., Upton, NY.  
Corp. Source Codes: 004545000; 0936000  
Sponsor: Department of Energy, Washington, DC.  
Report No.: BNL-62607; CONF-950388-3  
1995 10p

Languages: English Document Type: Conference proceeding  
Journal Announcement: GRAI9618; ERA9631

Geothermal program review (13th), San Francisco, CA (United States), 13-16 Mar 1995. Sponsored by Department of Energy, Washington, DC.

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NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: AC02-76CH00016

Regardless of the properties of the cured material, the practical use of advanced cementitious materials for geothermal well completions depends primarily upon the ability to predictably extend the thickening times for the precursor slurries at elevated temperatures to times sufficient to permit conventional placement. Ongoing work at Brookhaven National Laboratory being conducted with assistance from the geothermal industry, indicates that lightweight calcium phosphate cement slurries being developed as CO(sub 2(minus)) resistant well completion materials, can be conventional pumped at temperatures > 100(degrees)C without the addition of **retarding** admixtures. These slurries consist of mullite-shelled hollow **microspheres**, calcium aluminate cements and polybasic sodium phosphate. When cured in hydrothermal environments, the slurries yield high strength, low permeability cements which bond well to steel casing. Two compositional factors that affect the thickening times were identified. One is the calcium aluminate cement species that serve as the base reagent in the **slurry** formulation, and the other is the rate of hydrothermal reaction between the **microspheres** and the polybasic sodium phosphate solution.

18/7/2 (Item 1 from file: 8)  
DIALOG(R)File 8:Ei Compendex(R)  
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06533551 E.I. No: EIP03397645155

**Title: Processing of an aqueous tape casting of mesocarbon microbeads for high-performance carbonaceous laminations**

Author: Hu, X.B.; Zhong, S.; Zhao, B.Y.; Hu, K.A.

Corporate Source: Stt. Key Lab. of Met. Matrix Compos. Shanghai Jiaotong University, Shanghai 200030, China

Source: Carbon v 41 n 12 2003. p 2285-2293

Publication Year: 2003

CODEN: CRBNAH ISSN: 0008-6223

Language: English

Document Type: JA; (Journal Article) Treatment: T; (Theoretical); X; (Experimental)

Journal Announcement: 0309W5

Abstract: Tape casting is a traditional method for the manufacture of ceramic laminations. In this study, aqueous tape casting was adopted to obtain high-performance carbonaceous laminations with homogeneous density and high strength. For the preparation of a stable and homogeneous slurry of mesocarbon **microbeads**, the research focuses on the rheological behavior of slurries consisting of a solvent and additives such as a binder, **plasticizer** and dispersant. After three to five slips of casting tape laminated together under 40 MPa at 85 degree C and sinter heated to 1400 degree C for 1 h at a given heating ratio, carbonized laminations are obtained with an average density of 1.66 g/cm<sup>3</sup>, a bending strength of 82.76 MPa and an electrical conductivity of 169.2 S/cm. During sintering of green laminations, the additives are pyrolyzed at 500 degree C to form amorphous carbon, which reduces the electrical conductivity and the mechanical strength of the carbonized laminations. However, by controlling the total additive content of the slurries, the influence of the additives can be reduced to a minimum. copy 2003 Elsevier Ltd. All rights reserved. 22 Refs.

18/7/3 (Item 2 from file: 8)  
DIALOG(R)File 8: Ei Compendex(R)  
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04363810 E.I. No: EIP96033107952

Title: Sodium metasilicate-modified lightweight high alumina cements for use as geothermal well-cementing materials

Author: Sugama, T.; Carciello, N.

Corporate Source: Brookhaven Natl Lab, Upton, NY, USA

Source: Advanced Cement Based Materials v 3 n 2 Mar 1996. p 45-53

Publication Year: 1996

CODEN: ACATE9 ISSN: 1065-7355

Language: English

Document Type: JA; (Journal Article) Treatment: A; (Applications); G; (General Review)

Journal Announcement: 9605W3

Abstract: In studying the use of sodium metasilicate (SMS)-modified high alumina cements containing mullite-shelled **microspheres** as light-weight geothermal cementitious materials, we found that the following were the most advantageous characteristics of the slurries and of the 200 and 300 degree C autoclaved cements: (1) the slurries have a low density of less than 1.25 glcc, (2) the incorporation of SMS **retarded** the setting of the cements, (3) sodium calcium silicate hydrate and boehmite were formed in the matrix phase by hydrothermal reactions between the cement and SMS, and (4) there was a favorable reaction between the mullite shell layer in the hollow **microspheres** and the SMS to form analcime and boehmite phases. For characteristics (3) and (4), the pronounced development of these phases at 300 degree C generated a dense microstructure in the cements and was reflected on a reduced water permeability and a low rate of porosity. (Author abstract) 8 Refs.

18/7/4 (Item 1 from file: 87)  
DIALOG(R)File 87:TULSA (Petroleum Abs)  
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01097025 PETROLEUM ABSTRACTS NO.: 832232

TEMPORAL CHANGE IN THE MOISTURE CONTENT AND HEAT CONDUCTIVITY OF SET CEMENT WITH HOLLOW GLASS MICROSPHERES

ORESHKIN D V; PERVUSHIN G G

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 2, PP 41-43, FEB 2003 (ISSN

01303872; 8 REFS; IN RUSSIAN)  
2003  
ISSN: 0130-3872  
LANGUAGE: RUSSIAN  
DOCUMENT TYPE: JOURNAL ARTICLE; J

18/7/5 (Item 2 from file: 87)  
DIALOG(R)File 87:TULSA (Petroleum Abs)  
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01084574 PETROLEUM ABSTRACTS NO.: 822812  
HEAT-INSULATING MATERIAL WITH GLASS MICROSPHERES  
ORESHKIN D V  
STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 10, PP 29-35, OCT 2002 (ISSN  
01303872; 4 REFS; IN RUSSIAN)  
2002  
ISSN: 0130-3872  
LANGUAGE: RUSSIAN  
DOCUMENT TYPE: JOURNAL ARTICLE; J

18/7/6 (Item 1 from file: 94)  
DIALOG(R)File 94:JICST-Eplus  
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02692163 JICST ACCESSION NUMBER: 96A0316838 FILE SEGMENT: JICST-E  
Effects of Molecular Weight of PVA on the Adsorption and Dispersibility of  
Silica Microspheres in Aqueous Media.  
HORINOUCI KYOKO (1); KOMAKI HIDEYUKI (1); SENNA TAMOTSU (1)  
(1) Keio Univ., Fac. of Sci. and Technol.  
Nippon Reorogi Gakkaishi(Journal of the Society of Rheology, Japan), 1996,  
VOL.24,NO.1, PAGE.21-27, FIG.15, REF.12  
JOURNAL NUMBER: Z0961AAR ISSN NO: 0387-1533  
UNIVERSAL DECIMAL CLASSIFICATION: 544.723:53.06 532.135:678.01  
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan  
DOCUMENT TYPE: Journal  
ARTICLE TYPE: Original paper  
MEDIA TYPE: Printed Publication  
ABSTRACT: Aqueous solutions of PVA with their average degree of  
polymerization(dp)500 and 2240 were prepared, to which 0.9.MU.m uniform  
silica **microspheres** were dispersed. The amount of PVA adsorbed was  
larger on the molar basis with smaller dp, but indifferent on the  
weight basis. This indicates the different molecular configuration of  
adsorbed PVA with different dp. Maximum adsorption was observed at the  
isoelectric point of silica, i.e., around pH 3, and decreased with  
increasing pH. A good dispersion on the floc basis was accomplished at  
pH 3 with PVA concentration above 0.2wt%, irrespective of dp. At pH 11,  
appreciable coagulation began above 1.0wt% for dp 2240 and 2.0wt% for  
dp 500. The PVA concentration dependence of the effective solid volume  
fraction, estimated from steady shear measurement is similar to that of  
the Bingham yield value for the suspension at pH 3. The concentration  
dependence was smaller at pH 11. Small but appreciable coagulation was  
observed at pH 11 under optical microscope with increasing PVA  
concentration, which is reflected on the Bingham yield value but not on  
the effective solid volume fraction. This, together with the value of  
the average occupation of PVA per unit surface area of silica, indicates  
that the flocculation at pH 11 is due to coacervation mechanism.  
(author abst.)

18/7/7 (Item 2 from file: 94)  
DIALOG(R)File 94:JICST-EPlus  
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02007607 JICST ACCESSION NUMBER: 94A0340098 FILE SEGMENT: JICST-E  
**Correlation between Flow Properties of Silica-PVA Aqueous Slurries and  
Spray-dried Granules.**

ISHIMORI TOSHIHIRO (1); SENNA TAMOTSU (2)  
(1) Koseken; (2) Keio Univ., Faculty of Science and Technology  
Nippon Reoroji Gakkaishi(Journal of the Society of Rheology, Japan), 1994,  
VOL.22,NO.1, PAGE.45-50, FIG.10, TBL.1, REF.15  
JOURNAL NUMBER: Z0961AAR ISSN NO: 0387-1533  
UNIVERSAL DECIMAL CLASSIFICATION: 532.135:544.77  
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan  
DOCUMENT TYPE: Journal  
ARTICLE TYPE: Original paper  
MEDIA TYPE: Printed Publication  
ABSTRACT: The correlation between rheological behavior of a **slurry** ,  
composed of silica **microspheres** and poly (vinylalcohol) (PVA), and  
microstructure and also the disintegration behavior of spray-dried  
granules were studied. Pseudoplastic flow behavior was analyzed under  
the Bingham approximation to obtain the Bingham yield value, .TAU.B,  
plastic viscosity, .ETA.pl, and bulkiness of the flow unit, CFP. CFP is  
the ratio of the effective volume fraction of flocs, .PHI.F, to that of  
dry solid, .PHI.P. The dispersion of silica in the slurries was  
dominated by PVA adsorption at low pH and the electrostatic repulsion  
at high pH. The granules prepared from the **slurry** at pH=7 had the  
smallest apparent density and disintegrated under the smallest applied  
load. It is concluded that the microstructure and disintegration  
behavior of the granules are greatly affected by pH values at which the  
slurries are prepared, in spite of the similar flow behavior. (author  
abst.)

18/7/8 (Item 3 from file: 94)  
DIALOG(R)File 94:JICST-EPlus  
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02007606 JICST ACCESSION NUMBER: 94A0340097 FILE SEGMENT: JICST-E  
**Effects of PVA and Inorganic Surface Coating on the Viscous Flow and  
Dispersion Properties of Monodispersed Silica Microspheres .**

KOMAKI HIDEYUKI (1); SENNA TAMOTSU (1)  
(1) Keio Univ., Faculty of Science and Technology  
Nippon Reoroji Gakkaishi(Journal of the Society of Rheology, Japan), 1994,  
VOL.22,NO.1, PAGE.37-44, FIG.12, REF.19  
JOURNAL NUMBER: Z0961AAR ISSN NO: 0387-1533  
UNIVERSAL DECIMAL CLASSIFICATION: 532.135:544.77  
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan  
DOCUMENT TYPE: Journal  
ARTICLE TYPE: Original paper  
MEDIA TYPE: Printed Publication  
ABSTRACT: Steady viscous flow and dispersion properties of aqueous  
suspensions containing monodispersed silica **microspheres** of 0.9.MU.m  
were studied with special emphasis on the effect of PVA addition as a  
function of pH. Larger amount of PVA adsorption, observed at lower pH,  
always favored better dispersion and lower apparent viscosity. An  
apparent median particle size of the flocs in the stagnant suspension  
was mainly dominated by electrostatic repulsion and accordingly by pH.  
While the zeta-potential was determined solely by the surface species of  
the particles coated with either Al2O3 or ZrO2, silica substrate was

suspected to affect the adsorption behavior of PVA on the silica particles, coated particularly by Al<sub>2</sub>O<sub>3</sub>. (author abst.)

18/7/9 (Item 1 from file: 103)  
DIALOG(R)File 103:Energy SciTec  
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03980408 EDB-96-064168

**Title: Recent advances in the development of lightweight CO[sub 2]-resistant well cements**

Author(s)/Editor(s): Kukacka, L.E.; Sugama, T.

Corporate Source: Brookhaven National Lab., Upton, NY (United States)

Sponsoring Organization: DOE; USDOE, Washington, DC (United States)

Conference Title: 13. geothermal program review

Conference Location: San Francisco, CA (United States) Conference Date:  
13-16 Mar 1995

Publication Date: [1995]

(10 p)

Report Number(s): BNL-62607 CONF-950388--3

Order Number: DE96007741

Contract Number (DOE): AC02-76CH00016

Language: English

Availability: OSTI; NTIS; GPO Dep.

**Abstract:** Regardless of the properties of the cured material, the practical use of advanced cementitious materials for geothermal well completions depends primarily upon the ability to predictably extend the thickening times for the precursor slurries at elevated temperatures to times sufficient to permit conventional placement. Ongoing work at Brookhaven National Laboratory being conducted with assistance from the geothermal industry, indicates that lightweight calcium phosphate cement slurries being developed as CO[sub 2]-resistant well completion materials, can be conventionally pumped at temperatures > 100[degrees]C without the addition of **retarding** admixtures. These slurries consist of mullite-shelled hollow **microspheres**, calcium aluminate cements and polybasic sodium phosphate. When cured in hydrothermal environments, the slurries yield high strength, low permeability cements which bond well to steel casing. Two compositional factors that affect the thickening times were identified. One is the calcium aluminate cement species that serve as the base reagent in the **slurry** formulation, and the other is the rate of hydrothermal reaction between the **microspheres** and the polybasic sodium phosphate solution.

18/7/10 (Item 2 from file: 103)  
DIALOG(R)File 103:Energy SciTec  
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01657791 NET-84-50717; EDB-85-164571

**Title: Geothermal well light-weight cementing compositions**

Author(s): Martin, M.; Strub, A.S.; Ungemach, P. (eds.)

Affiliation: Institut Francais du Petrole

**Title: European geothermal update. Proceedings of the 3. international seminar on the results of EC geothermal energy research, held in Munich, F.R. Germany, 29 November-1 December 1983**

Publisher: D. Reidel Publishing Company, Dordrecht, Netherlands

Publication Date: 1985

p 447-453

Language: English

**Abstract:** Light-weight materials are developed for cementing jobs in wells

with low fracturing pressure gradient in order to prevent the **slurry** losses from the annulus to the formation. A research program is in progress on such materials for application to high-enthalphy geothermal wells with temperature up to 350 C and pressure up to 50 MPa. To date, the results concern cementing materials with a density less than 1500 kg/m<sup>3</sup> consisting of a high temperature oil well cementing composition as basis, hollow **microspheres** as light-weight additives, and eventually other additives such as viscosity-reducer and **retarder**. The mainly involved characteristics are the density and the compressive strength. As an example, for a material tested, the **slurry** density increase from 1260 kg/m<sup>3</sup> after mixing under atmospheric pressure to 1470 kg/m<sup>3</sup> under 40 MPa. The compressive strength of the solid is 7.5 MPa after exposure to water at 330 C for 30 days. But an important work must be continued by testing the behavior after prolonged exposure to formation fluids and adjusting the thickening time. (A.V.)

18/7/11 (Item 1 from file: 144)  
DIALOG(R) File 144:Pascal  
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16363624 PASCAL No.: 03-0530631  
**Processing of an aqueous tape casting of mesocarbon microbeads for high-performance carbonaceous laminations**

HU X B; ZHONG S; ZHAO B, Y; HU K A  
State Key Laboratory of Metal Matrix Composites, Shanhai Jiaotong University, 1954 Huashan Road, Shanghai 200030, China  
Journal: Carbon : (New York, NY), 2003, 41 (12) 2285-2293  
ISSN: 0008-6223 CODEN: CRBNAH Availability: INIST-11401;  
354000112987500100

No. of Refs.: 22 ref.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: United Kingdom

Language: English

Tape casting is a traditional method for the manufacture of ceramic laminations. In this study, aqueous tape casting was adopted to obtain high-performance carbonaceous laminations with homogeneous density and high strength. For the preparation of a stable and homogeneous **slurry** of mesocarbon **microbeads**, the research focuses on the rheological behavior of slurries consisting of a solvent and additives such as a binder, **plasticizer** and dispersant. After three to five slips of casting tape laminated together under 40 MPa at 85 Degree C and sinter heated to 1400 Degree C for 1 h at a given heating ratio, carbonized laminations are obtained with an average density of 1.66 g/cm<sup>3</sup> SUP 3, a bending strength of 82.76 MPa and an electrical conductivity of 169.2 S/cm. During sintering of green laminations, the additives are pyrolyzed at 500 Degree C to form amorphous carbon, which reduces the electrical conductivity and the mechanical strength of the carbonized laminations. However, by controlling the total additive content of the slurries, the influence of the additives can be reduced to a minimum.

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18/7/12 (Item 2 from file: 144)  
DIALOG(R) File 144:Pascal  
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12499974 PASCAL No.: 96-0169615  
**Sodium metasilicate-modified lightweight high alumina cements for use as**

geothermal well-cementing materials

SUGAMA T; CARCIELLO N

Brookhaven Natl Lab, Upton NY, USA

Journal: Advanced Cement Based Materials, 1996, 3 (2) 45-53

ISSN: 1065-7355 CODEN: ACATE9 Availability: E.i.

No. of Refs.: 8 Refs.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: USA

Language: English

In studying the use of sodium metasilicate (SMS)-modified high alumina cements containing mullite-shelled **microspheres** as light-weight geothermal cementitious materials, we found that the following were the most advantageous characteristics of the slurries and of the 200 and 300 Degree C autoclaved cements: (1) the slurries have a low density of <1.25 glcc, (2) the incorporation of SMS **retarded** the setting of the cements, (3) sodium calcium silicate hydrate and boehmite were formed in the matrix phase by hydrothermal reactions between the cement and SMS, and (4) there was a favorable reaction between the mullite shell layer in the hollow **microspheres** and the SMS to form analcime and boehmite phases. For characteristics (3) and (4), the pronounced development of these phases at 300 Degree C generated a dense microstructure in the cements and was reflected on a reduced water permeability and a low rate of porosity.

18/7/13 (Item 3 from file: 144)

DIALOG(R)File 144:Pascal

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12176606 PASCAL No.: 95-0391367

**Correlation between flow properties of silica-PVA aqueous slurries and spray-dried granules**

ISHIMORI Toshihiro; SENNA Mamoru

Division of Research and Development, KOSE, Co., 1-81-4 Azusawa, Itabashi-ku, Tokyo 174, Japan; Faculty of Science and Technology, Keio University, 3-14-1 Hiyoshi, Kouhoku-ku, Yokohama-city, Kanagawa 223, Japan

Journal: Journal of Rheology, 1995-07, 39 (4) 792-792

ISSN: 0148-6055 CODEN: JORHD2 Availability: INIST-1256

Document Type: P (Serial) ; A (Analytic)

Country of Publication: USA

Language: English

The correlation between rheological behavior of a **slurry**, composed of silica **microspheres** and poly (vinylalcohol) (PVA), and microstructure and also the disintegration behavior of spray-dried granules were studied. Pseudoplastic flow behavior was analyzed under the Bingham approximation to obtain the Bingham yield value, tau SUB B, plastic viscosity, eta SUB p SUB 1, and bulkiness of the flow unit, C SUB F SUB P. C SUB F SUB P is the ratio of the effective volume fraction of flocs, phi SUB F, to that of dry solid, phi SUB P. The dispersion of silica in the slurries was dominated by PVA adsorption at low pH and the electrostatic repulsion at high pH. The granules prepared from the **slurry** at pH = 7 had the smallest apparent density and disintegrated under the smallest applied load. It is concluded that the microstructure and disintegration behavior of the granules are greatly affected by pH values at which the slurries are prepared, in spite of the similar flow behavior.

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18/7/14 (Item 1 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)



Glass fibers,uses...

zirconia-contg., reinforcement; low-d., glass or polymer  
fiber-reinforced cement slurries for oil/gas wells drilling and  
cementing

CAS REGISTRY NUMBERS:

10101-41-4 gypsum-structured, in cement slurries; low-d., glass or polymer  
fiber-reinforced cement slurries for oil/gas wells drilling and  
cementing

1314-23-4 uses, in glass fiber reinforcement; low-d., glass or polymer  
fiber-reinforced cement slurries for oil/gas wells drilling and  
cementing

18/7/15 (Item 2 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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138092738 CA: 138(7)92738r JOURNAL

Coatings for electrochemical applications

AUTHOR(S): Despotopoulou, Marina; Burchill, Michael T.

LOCATION: ATOFINA Chemicals Inc., King of Prussia, PA, 19406, USA

JOURNAL: Prog. Org. Coat. (Progress in Organic Coatings) DATE: 2002

VOLUME: 45 NUMBER: 2-3 PAGES: 119-126 CODEN: POGCAT ISSN: 0300-9440

PUBLISHER ITEM IDENTIFIER: 0300-9440(02)00105-4 LANGUAGE: English

PUBLISHER: Elsevier Science B.V.

SECTION:

CA252002 Electrochemical, Radiational, and Thermal Energy Technology

CA238XXX Plastics Fabrication and Uses

CA272XXX Electrochemistry

CA276XXX Electric Phenomena

IDENTIFIERS: coating electrochem, polyvinylidene fluoride graphite slurry  
coating copper electrode, elec cond adhesion PVDF graphite coating copper  
electrode, gel electrolyte PVDF lithium hexafluorophosphate cond swelling  
aging, lithium battery electrode electrolyte PVDF based component

DESCRIPTORS:

Adhesion,physical... Aging,materials... Battery anodes... Battery cathodes  
... Battery electrolytes... Electric conductivity... Electric impedance...

Secondary battery separators... Swelling,physical... Fluoropolymers,uses...

fabrication of electrodes and gel electrolytes based on PVDF-graphite  
slurry coatings on copper and PVDF-LiPF6 gels and cond. and aging  
stability of assembled batteries

Fluoropolymers,uses...

Kynar, complex with mesophase carbon microbeads, anode coating;  
fabrication of electrodes and gel electrolytes based on PVDF-graphite  
slurry coatings on copper and PVDF-LiPF6 gels and cond. and aging

CAS REGISTRY NUMBERS:

7782-42-5D complex with Kynar, mesophase microbeads; fabrication of  
electrodes and gel electrolytes based on PVDF-graphite slurry coatings  
on copper and PVDF-LiPF6 gels and cond. and aging stability of  
assembled batteries

96-49-1 108-32-7 21324-40-3 fabrication of electrodes and gel  
electrolytes based on PVDF-graphite slurry coatings on copper and  
PVDF-LiPF6 gels and cond. and aging stability of assembled batteries

84-74-2 gel plasticizer, extd. before measurements; fabrication of  
electrodes and gel electrolytes based on PVDF-graphite slurry coatings  
on copper and PVDF-LiPF6 gels and cond. and aging stability of  
assembled batteries

24937-79-9 Kynar, complex with mesophase carbon microbeads, anode coating;  
fabrication of electrodes and gel electrolytes based on PVDF-graphite  
slurry coatings on copper and PVDF-LiPF6 gels and cond. and aging  
stability of assembled batteries

7440-50-8 uses, fabrication of electrodes and gel electrolytes based on PVDF-graphite slurry coatings on copper and PVDF-LiPF6 gels and cond. and aging stability of assembled batteries  
872-50-4 uses, slurry solvent; fabrication of electrodes and gel electrolytes based on PVDF-graphite slurry coatings on copper and PVDF-LiPF6 gels and cond. and aging stability of assembled batteries

18/7/16 (Item 3 from file: 399)  
DIALOG(R) File 399:CA SEARCH(R)  
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105231488 CA: 105(26)231488t PATENT  
Improved composition for lightweight cement slurry for cementing petroleum and gas wells  
INVENTOR(AUTHOR): Sault, Patrick; Parcevaux, Philippe  
LOCATION: Fr.  
ASSIGNEE: Etudes et Fabrication Dowell Schlumberger  
PATENT: France Demande ; FR 2573064 A1 DATE: 860516  
APPLICATION: FR 8417632 (841115)  
PAGES: 15 pp. CODEN: FRXXBL LANGUAGE: French CLASS: C04B-028/04A; E21B-033/14B; C04B-028/04J; C04B-014/10J; C04B-014/14J; C04B-018/22J; C04B-024/28J; C04B-024/32J  
SECTION:  
CA158001 Cement, Concrete, and related Building Materials  
CA151XXX Fossil Fuels, Derivatives, and Related Products  
IDENTIFIERS: SBR latex lightwt cement well  
DESCRIPTORS:  
Clay minerals...  
cement sedimentation retardant, in slurries with SBR latex for gas migration control  
Cement, lightwt....  
for wells, contg. SBR latex, for gas migration control  
Aluminosilicates, uses and miscellaneous...  
hollow microspheres, in lightwt. cement for wells, with SBR latex for gas migration control  
Ashes(residues), fly... Carbon black, uses and miscellaneous... Kieselguhr...  
Pozzolans...  
in lightwt. cement for wells, with SBR latex for gas migration control  
Rubber, butadiene-styrene, uses and miscellaneous...  
latex, in lightwt. cement for wells for gas migration control  
Surfactants, nonionic...  
latex stabilizers, in lightwt. well cement slurries contg. SBR latex  
Natural gas, wells... Petroleum wells...  
lightwt. cement for, contg. SBR latex for gas migration control  
CAS REGISTRY NUMBERS:  
9004-34-6D derivs., cement sedimentation retardant, in slurries with SBR latex for gas migration control  
7440-44-0D derivs., in lightwt. cement for wells, with SBR latex for gas migration control  
26914-43-2D derivs., polymers, cement sedimentation retardant, in slurries with SBR latex for gas migration control  
?

how files;ds

File 987:TULSA (Petroleum Abs) 1965-2004/Aug W1  
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Set	Items	Description
S1	33184	SLURRY OR SUSPENSION() MIXTURE OR SLUDGE OR DRILLING() FLUID
S2	35917	(OIL OR GAS OR PETROLEUM OR PETRO) (2N) WELL?
S3	41746	WITHOUT OR DOESN() T OR NO
S4	8	SUSPENSION() AGENT
S5	22	SET() RETARDER
S6	5944	CERAMIC OR GLASS
S7	4184	PLASTICITY OR PLASTICI?ER OR THERMOPLASTIC?
S8	44870	ADDITIV?
S9	183	MICRO() (SPHER? OR BEAD? OR PARTICLE?) OR MICROSPHERE? OR M-ICROBEAD? OR MICROPARTICLE?
S10	1134	RETARDER OR SETRETARDER OR RETARDED(2N) CEMENT
S11	54	S1 AND S9
S12	0	S11 AND S7 AND S10
S13	49	S11 AND (S7 OR S8 OR S10)
S14	0	S12 NOT PD=>20030822
S15	0	RD (unique items)
S16	48	RD S13 (unique items)
?		

PATENT INFORMATION: US 5211238, C 5/18/93, F 11/8/91 (APPL 790265)  
(E21B-033/14) (5 PP; 10 CLAIMS)  
PATENT (NO, DATE): US 5211238 19930518  
APPLICATION (NO, DATE): US 790265 19911108  
PUBLICATION YEAR: 1993  
IPC CODE: E21B-033/14  
LANGUAGE: ENGLISH  
DOCUMENT TYPE: PATENT; P

A method is described for cementing a casing in a highly deviated or horizontal well to achieve complete zonal isolation and improve bonding of equipment in the well bore. A cement **slurry** is used that incorporates low density fly ash borosilicate **microspheres** for the purpose of free water control. The low specific gravity (s.g.) of the **microspheres** allows them to migrate upward in the aqueous cement suspension. The 0.17 to 0.9 s.g. of the **microspheres** is sufficiently lower than the 1.0 to 1.03 s.g. of the cement mix water to induce this upward migration. The concentration of **microspheres** along the high side of the well bore assures cementitious material will remain in this critical area

16/7/37

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00773296 PETROLEUM ABSTRACTS NO.: 518695

**LIGHTWEIGHT CEMENT FOR HIGH PRESSURE APPLICATIONS**

AUTHOR (INVENTOR): CHAN K S; CUTLER D  
PATENT ASSIGNEE: PUMPTech NV; DOWELL SCHLUMBERGER SA  
PATENT INFORMATION: EUROPE 449360, P 10/2/91, F 3/21/91, PR US 3/29/90  
(APPL 502086) (C04B-028/04; C04B-038/00; C04B-018/08; C04B-018/16;  
C04B-014/02) (8 PP; 10 CLAIMS)  
PATENT (NO, DATE): EP 449360 19911002  
APPLICATION (NO, DATE): 19910321  
PRIORITY (NO, DATE): US 502086 19900329  
PUBLICATION YEAR: 1991  
IPC CODE: C04B-028/04; C04B-038/00; C04B-018/08; C04B-018/16; C04B-014/02  
LANGUAGE: ENGLISH  
DOCUMENT TYPE: PATENT; P

A lightweight cement composition for use in high pressure environments (greater than 3,000 psi) comprises an aqueous **slurry** of a hydratable cement, ceramic **microspheres** and a foaming surfactant. It has been found that the presence of the foaming surfactant synergistically overcomes the normal tendency of the ceramic **microspheres** to crush at a pressure greater than 3,000 psi

16/7/38

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00754102 PETROLEUM ABSTRACTS NO.: 499501

**THINNED CEMENT SLURRY FOR USE IN THE CEMENTATION OF WELLS FOR PRODUCING HYDROCARBONS**

AUTHOR (INVENTOR): BAFFREAU D; LAUGEROTTE J C; MUSIKAS N  
PATENT ASSIGNEE: CIE FRANCAISE PETROLES; CIMENTS D ORIGNY  
PATENT INFORMATION: WORLD 90/9357, P 8/23/90, F 2/12/90, PR FR 2/14/89  
(APPL 8901881) (C04B-028/04; E21B-033/13; C04B-024/28) PCT GAZ V 1990, NO 20, P 5938, 8/23/90 (ISSN 02507757; ABSTRACT ONLY) (AO)  
PATENT (NO, DATE): WO 9009357 19900823  
APPLICATION (NO, DATE): 19900212

Karen Lehman EIC 3600 02-Aug-04

PRIORITY (NO, DATE): FR 8901881 19890214  
PUBLICATION YEAR: 1990  
IPC CODE: C04B-028704; E21B-033/13; C04B-024/28  
ISSN: 0250-7757  
LANGUAGE: ENGLISH  
DOCUMENT TYPE: PATENT; P; ABSTRACT ONLY; AO

A thinned cement **slurry** comprises a hydraulic cement, water, and the usual cement **additives**. The **slurry** comprises between 5 and 65% and, preferably, between 25 and 40%, compared to the weight of the cement, of **microparticles** derived from silica fumes, and from one to 25% and, preferably, from 5 to 15%, compared to the weight of the water, of at least one imine polyethylene or at least one imine polyethylene derivate. (Original patent not available from T.U)

16/7/39

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00732409 PETROLEUM ABSTRACTS NO.: 477808

**CA(OH)2-TREATED CERAMIC MICROSPHERE**

AUTHOR (INVENTOR): SUGAMA T

PATENT ASSIGNEE: ASSOC UNIVERSITIES INC

PATENT INFORMATION: US 4822422, C 4/18/89, F 10/9/87 (APPL 106269)  
(C04B-007/00; C04B-014/00) (5 PP; 1 CLAIM)

PATENT (NO, DATE): US 4822422 19890418

APPLICATION (NO, DATE): US 106269 19871009

PUBLICATION YEAR: 1989

IPC CODE: C04B-007/00; C04B-014/00

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

Lost circulation problems in geothermal wells are prevented by cementing with a lightweight, high temperature (i.e., 350(deg)C) cement **slurry** which incorporates pressure resistant hollow **microspheres** into the **slurry** wherein the spheres have been pretreated with an alkali compound such as  $\text{Ca(OH)}_2$  for up to 20 hr and at 100(deg) to 300(deg)C. Preferably, the alkali solution is a saturated, aqueous solution, and the treatment is for 10 hr. The treatment imparts the needed high strength to the **microspheres**

16/7/40

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00729521 PETROLEUM ABSTRACTS NO.: 474920

**COMPOSITION FOR A LIGHTWEIGHT CEMENT SLURRY FOR CEMENTING OIL AND GAS WELLS**

AUTHOR (INVENTOR): PARCEVAUX P; SAULT P

PATENT ASSIGNEE: DOWELL SCHLUMBER CAN INC

PATENT INFORMATION: CAN 1261131, C 9/26/89, F 5/29/86 (APPL 510341)  
(E21B-033/14) (16 PP; 16 CLAIMS)

PATENT (NO, DATE): CA 1261131 19890926

APPLICATION (NO, DATE): CA 510341 19860529

PUBLICATION YEAR: 1989

IPC CODE: E21B-033/14

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

A homogeneous lightweight cement **slurry** is described for cementing the annulus of an oil or gas well. The **slurry** comprises cement, an extender

in the form of solid particles, a styrene-butadiene latex, and water. The slurry has a specific gravity lying in the range from 1.2 to 1.6 and has a volume ratio of the liquid phase of the slurry to the total volume of the slurry of less than 70%. The slurry contains at least one extender chosen from pozzolans, diatomic earths, fly ashes, hollow silica-alumina microspheres and coal derivatives, such as coal dust and carbon black. The extender is chosen from those having a density of less than 2.2 g/cu cm. The slurry may additionally contain an agent for preventing the cement from settling, the agent being chosen from clay minerals, polystyrene sulfonate and cellulose derivatives

16/7/41

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00698073 PETROLEUM ABSTRACTS NO.: 443472

**TREATED CERAMIC MICROSPHERE -CEMENT LIGHTWEIGHT COMPOSITES FOR GEOTHERMAL CEMENTING SYSTEMS**

SUGAMA T; KUKACKA L E

BROOKHAVEN NATIONAL LAB

BROOKHAVEN NAT LAB REP NO BNL-40177 (DE87014916) AUG 1987 (1 MICROFICHE WITH 16 PP; 4 REFS)  
1987

LANGUAGE: ENGLISH

DOCUMENT TYPE: GOVERNMENT REPORT; GR

The compressive strength and water permeability of high-temperature lightweight cementing materials containing sillimanite-based hollow microspheres as a filler can be improved by treating the surfaces of the microspheres with a Ca(OH)<sub>2</sub>-saturated solution at temperatures up to 200(deg)C. The precipitation of an epitaxial layer formed by an interaction between a hot calcium hydroxide solution and the surface of the sphere plays an essential role in developing favorable bonding characteristics at the interfaces and in promoting the hydration of the cement matrix. The properties of the composites include a slurry density of < 1.2 g/cu cm at 25(deg)C, a 300(deg)C, 24-hr compressive strength of > 1,015 psi (7.0 MPa), a water permeability of < 10<sup>-4</sup> darcy, and a bulk density of < 1.0 g/cu cm. Tobermorite-truscottite transformation and anorthite formation during autoclave exposure for 180 days in brine at 300(deg)C resulted in slight strength reductions and increased water permeability

16/7/42

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00658987 PETROLEUM ABSTRACTS NO.: 404405

**HIGH-STRENGTH MICROSPHERE ADDITIVE IMPROVES CEMENT PERFORMANCE IN GULF OF BOHAI**

WU C; ONAN D D

HALLIBURTON LTD; HALLIBURTON SERVICES

SPE PETROL ENG INT MTG (BEIJING, CHINA, 3/17-20/86) PROC V 2, PP 141-145, 1986 (SPE-14094)  
1986

REPORT NUMBER: SPE-14094

LANGUAGE: ENGLISH

DOCUMENT TYPE: MEETING PAPER TEXT; AT

Operators in the Gulf of Bohai have practically eliminated remedial squeeze cementing requirements by using encapsulated air as a lightweight cement additive. Air entrapped in hollow beads composed mostly of silicon

Karen Lehman EIC 3600 02-Aug-04

and aluminum is added to the **slurry** to allow for mixtures lighter than water, but with necessary strength to provide good primary cement jobs. Cementing in the Gulf of Bohai is made difficult by bottom-hole static temperatures of ~~275~~ to 320 F. Specific gravity of the mud is 1.1 to 1.3. Most wells have 3 to 8 productive zones, making good isolation between zones critical to drill-stem testing and future production work. Use of high-strength **microspheres** as a cement **additive** has improved primary casing and liner cementing to the point that remedial squeeze cementing in the Gulf of Bohai is now a rarity. (1 ref

16/7/43

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00633141 PETROLEUM ABSTRACTS NO.: 378559

**FIELD PERFORMANCE OF ULTRA LIGHTWEIGHT CEMENT SLURRY COMPOSITIONS USED IN THE U.A.E. (UNITED ARAB EMIRATES)**

MURALI B N; TANNER C H

HALLIBURTON LTD

4TH SPE OF AIME MIDDLE EAST OIL TECH CONF (BAHRAIN, 3/11-14/85) PROC PP 133-141, 1985 (SPE-13692)

1985

REPORT NUMBER: SPE-13692

LANGUAGE: ENGLISH

DOCUMENT TYPE: MEETING PAPER TEXT; AT

This paper deals with using an ultra lightweight cement admixture to solve an inherent lost circulation problem which is commonly encountered in the United Arab Emirates (UAE). The admixture of high strength **microspheres** (HSMS) was initially used to enhance a cement **slurry** to combat lost circulation problems by the HSMS combination of greatly reduced density and bridging action ability. This concept was useful for cementing fragile permafrost formations, subsea conductor pipes, and offshore casing set in unconsolidated mudstone and silt, as well as any weak, incompetent zones in general. For several operators in the UAE, the performance of ultra lightweight cements containing the admixture of HSMS has been outstanding and they have decided to use these slurries in their standard primary cementing programs

16/7/44

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00630141 PETROLEUM ABSTRACTS NO.: 375559

**APPLICATION OF FOAM CEMENTS IN ALBERTA**

OLANSON M T

PANCANADIAN PETROLEUM LTD

35TH ANNU PETROL SOC OF CIM & CAN ASS DRILLING ENG RECOVERY & BEYOND TECH MTG (CALGARY, 6/10-13/84) PREPRINTS V 1, PP 59-71, 1984 (PAP NO 84-35-72)

1984

LANGUAGE: ENGLISH

DOCUMENT TYPE: MEETING PAPER TEXT; AT

The demand for lightweight cement in areas of low strength formations has led to the increased use of foamed cement in PanCanadian's wells. Foamed cementing involves mixing surfactant upstream of the cement pumper and injecting nitrogen into the pumper discharge line, with a foam generator installed downstream. The constant foam density method was used. It involves increasing uniformly the nitrogen/cement ratio, to establish a constant **slurry** density of the cement column. In wells cemented to

surface, a nitrogen-free cap of 100 to 200 m of lead cement was maintained above the foam, to prevent nitrogen from breaking out to surface. Although exhibiting relatively high strengths and reasonably low permeabilities, the foamed cement was used only as a filler cement. All the zones of interest were covered by a pad of neat tail-in cement. Foamed cementing is only slightly more expensive than conventional cement jobs, but less costly and involving less mechanical risk than multistage jobs. It is considerably less expensive than glass or ceramic **microsphere** cementing. (14 refs

16/7/45

DIALOG(R)File 987:TULSA (Petroleum Abs)

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00546068 PETROLEUM ABSTRACTS NO.: 291486

MICROSPHERES CUT DENSITY OF CEMENT SLURRY

HARMS W M; LINGENFELTER J T

OIL GAS J V 79, NO 5, PP 59-66, 2/2/81 (ISSN 00301388)

1981

ISSN: 0030-1388

LANGUAGE: ENGLISH

DOCUMENT TYPE: JOURNAL ARTICLE; J

A light-weight **additive** has been developed which can be used to formulate cementing compositions that have densities as low as 8.5 lb/gal. These type slurries can develop good compressive strength at temperatures as low as 28 F. The **additive** will withstand temperature conditions ranging from permafrost to high-temperature thermal wells. The new admixture consists of small (10 to 100 micrometers) diameter inorganic high-strength **microspheres** (HSMS) which remain useful at pressures up to 6,000 psi. Four major areas have already been identified as practical candidates for low-density slurries prepared with the **additive**: (1) thermal wells that require minimum density cement compositions with effective insulation properties; (2) incompetent formations on and off shore requiring cement densities less than 11 lb/gal; (3) cold formations (28 to 80 F) that need minimum cementing densities; and (4) offshore platform grouting. Descriptions of these compositions, their compressive strength development, pressure resistance, thickening times, and other properties are presented with data pertaining to the numerous applications that have been completed to date

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01105075 PETROLEUM ABSTRACTS NO.: 840282

DRILLING FLUID CONTAINING MICROSPHERES AND USE THEREOF

AUTHOR (INVENTOR): SHINBACH M P; NWABUNMA D; CHAN H T; D'SOUZA A S

PATENT ASSIGNEE: 3M INNOVATIVE PROPERTIES CO

PATENT INFORMATION: WORLD 04/016707A1, P 2/26/2004, F 6/3/2003, PR US  
8/14/2002 (APPL 218962) (C09K-007/00) (39 PP; 53 CLAIMS)

PATENT (NO, DATE): WO 04016707 A 20040226

APPLICATION (NO, DATE): 20030603

PRIORITY (NO, DATE): US 218962 20020814

PUBLICATION YEAR: 2004

IPC CODE: C09K-007/00

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

A drilling fluid composition and a method of drilling are provided comprising a drilling fluid, which may be oil- or water-based, and a composite microsphere component. The drilling fluid composition advantageously reduces the density of a conventional fluid, reduces costs associated with pumping, and overcomes problems associated with conventional gas-injection processes. The method uses conventional drilling and pumping equipment, requires no seafloor based pumps, and may be easily pressure-controlled to maintain the pressure of the fluid

16/7/2

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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01103709 PETROLEUM ABSTRACTS NO.: 838916

EFFECT OF STAGE CEMENTING TECHNOLOGY ON QUALITY OF WELL CEMENTING AND ISOLATING PRODUCING FORMATIONS IN THE KOGALYM REGION

LUMANOV R R; BAKIROV D L; BURDYGA V A; DOROSHENKO I YA

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 7, PP 37-39, JULY 2003 (ISSN  
01303872; IN RUSSIAN)

2003

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

Oil fields of the Kogalym region of Western Siberia are multizone. Under the complex geological and technical conditions of the fields, a higher quality of isolation of formations but a smaller annulus fill-up height are obtained with one-stage cementing. With two-stage cementing, the proportion of wells with failure of the cement to rise to the design height is smaller, but the proportion of wells with annular crossflow and leakage of the strings is greater. One-stage cementing with the use of superlight slurries with microspheres instead of gel cement is promising for further improvement of the quality of casing and cementing wells and reducing costs

16/7/3

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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01103694 PETROLEUM ABSTRACTS NO.: 838901

HIGH-QUALITY CEMENT SLURRY MATERIALS WITH HOLLOW GLASS MICROSPHERES

ORESHKIN D V

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 7, PP 20-31, JULY 2003 (ISSN 01303872; 24 REFS; IN RUSSIAN)

2003

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

This work, conducted within the scope of the research programs of Gazprom and LUKOIL, created a lightweight and super-lightweight cement **slurry** material that is aerated with hollow glass **microspheres** (HGM) having a stable average density regardless of pressure and the properties required by well operating conditions. The strength and physical/mechanical properties of slurries with HGMs at various temperatures and pressures are given. It is shown that the stable properties of oil-well Portland cements and HGMs produced by domestic industry provide a high uniformity of structure and properties of the **slurry** material and afford the possibility of its effective use for cementing wells with depth of 3,000 m, including rocks with low bearing capacity, which makes the developed **slurry** compositions universal

16/7/4

DIALOG(R)File 987:TULSA (Petroleum Abs)

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01097025 PETROLEUM ABSTRACTS NO.: 832232

TEMPORAL CHANGE IN THE MOISTURE CONTENT AND HEAT CONDUCTIVITY OF SET CEMENT WITH HOLLOW GLASS MICROSPHERES

ORESHKIN D V; PERVUSHIN G G

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 2, PP 41-43, FEB 2003 (ISSN 01303872; 8 REFS; IN RUSSIAN)

2003

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

The reliability of protecting permafrost was predicted by studying changes in the moisture content (moisture transport) of set cement over the course of 10 yr. It was found that the moisture content decreases due to hydration of Portland cement in all three investigated cement collars. Moisture transport is realized due to moisture and temperature gradients, the latter accounting for only 5-10% of moisture transport. Migration of moisture to the boundary of the insulating cementing materials containing hollow glass **microspheres** and superplasticizer with permafrost strengthens their bond and the seal of the annulus. The decrease of moisture content in the third cement collar considerably increased the heat-protecting properties of the design for operating oil and gas wells under permafrost conditions

16/7/5

DIALOG(R)File 987:TULSA (Petroleum Abs)

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01097002 PETROLEUM ABSTRACTS NO.: 832209

HEAT-ENGINEERING CALCULATION OF A GAS WELL DESIGN FOR PERMAFROST CONDITIONS

ORESHKIN D V; PERVUSHIN G N

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 3, PP 2-6, MARCH 2003 (ISSN 01303872; 5 REFS; IN RUSSIAN)

2003

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

The heat-engineering calculation given of a well design for permafrost conditions proved the possibility of combining cementing the annulus with heat-insulating cementing material containing hollow glass **microspheres** and a heat-insulating layer for passive insulation. The well design created protects the permafrost from thawing and the entire geocryogenic complex of the region. The starting points of the calculation are the required thermal resistances of heat transfer from the oil or gas well for the entire range of negative temperatures of permafrost (from 0(deg) to -8(deg)C), total thickness of the cement collar, and its heat-engineering properties. The values of the required thermal resistance of the well design for which thawing of permafrost will not occur, depending on the heat conductivity and thickness of the external cement collar and temperature of permafrost, were determined

16/7/6

DIALOG(R)File 987:TULSA (Petroleum Abs)

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01094954 PETROLEUM ABSTRACTS NO.: 830161

**R) STORABLE WATER- MICROSPHERE SUSPENSIONS FOR USE IN WELL CEMENTS AND METHODS**

AUTHOR (INVENTOR): VIJN J P; DAO B

PATENT ASSIGNEE: HALLIBURTON ENERGY SERVICE

PATENT INFORMATION: US 6644405B2, C 11/11/2003, F 3/21/2002 (APPL 102995) (E21B-033/13) (6 PP; 15 CLAIMS) See related patent abstract # 826471

PATENT (NO, DATE): US 6644405B 2 20031111

APPLICATION (NO, DATE): US 102995 20020321

PUBLICATION YEAR: 2003

IPC CODE: E21B-033/13

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

(For abstract, see Abstract #826,471)

16/7/7

DIALOG(R)File 987:TULSA (Petroleum Abs)

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01092260 PETROLEUM ABSTRACTS NO.: 827467

**IMPERMEABLE OIL WELL CEMENT**

AUTHOR (INVENTOR): DROCHON B; MICHAUX M

PATENT ASSIGNEE: SCHLUMBERGER HOLDINGS LTD

PATENT INFORMATION: GR BRIT 2387593A, P 10/22/2003, F 4/17/2002 (APPL 0208774) (C04B-007/13; C04B-007/14; C04B-018/08) (17 PP; 11 CLAIMS)

PATENT (NO, DATE): GB 2387593 A 20031022

APPLICATION (NO, DATE): GB 0208774 20020417

PUBLICATION YEAR: 2003

IPC CODE: C04B-007/13; C04B-007/14; C04B-018/08

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

An oil, gas, or water well cementing composition comprises a blend of Portland cement and pozzolanic materials (blast furnace slags, fly ash, etc.) such that the chemical composition, expressed in oxides, has a CaO/SiO<sub>2</sub> molar ratio below 1.7. A preferred composition is a mixture of Portland cement and blast furnace slags with more than 60% of slags. The Blaine fineness of this material can be between 2,500 and 12,000 sq cm/g and preferentially between 3,000 and 5,000 sq cm/g. Hollow particulate material, such as cenospheres, glass **microspheres**, or ceramic spheres,

may be added to the composition. The spheres remain intact when combined with the cementitious materials and do not cause the final composition to become porous

16/7/8

DIALOG(R)File 987:TULSA (Petroleum Abs)

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01090918 PETROLEUM ABSTRACTS NO.: 288764

**WATER-GEL EXPLOSIVE AND A METHOD OF PRODUCING THE SAME**

AUTHOR (INVENTOR): HATTORI K; TAKAHASHI M

PATENT INFORMATION: U S 4175990, C 11/27/79, F 6/19/78, PR JAPAN 6/27/77  
(APPL 52/75485); NIPPON OIL & FATS CO LTD

PATENT (NO, DATE): US 4175990 791127

APPLICATION (NO, DATE): 780619

PRIORITY (NO, DATE): JP 5275485 770627

PUBLICATION YEAR: 7911

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

A water-gel explosive consists of ammonium nitrate alone or in admixture with other inorganic oxidized acid salt, water, nitroparaffin having one to 3 carbon atoms, a gelatinizing agent for water, a gelatinizing agent for nitroparaffin, glass hollow **microspheres**, and an amide has a high initiation sensitivity even at low temperature. (21 claims

16/7/9

DIALOG(R)File 987:TULSA (Petroleum Abs)

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01088233 PETROLEUM ABSTRACTS NO.: 826471

**WATER- MICROSPHERE SUSPENSIONS FOR USE IN WELL CEMENTS**

AUTHOR (INVENTOR): VIJN J P; DAO B

PATENT ASSIGNEE: HALLIBURTON ENERGY SERVICE

PATENT INFORMATION: EUROPE 1348831A1, P 10/1/2003, F 11/4/2002, PR US  
3/21/2002 (APPL 102995) (E21B-033/13) (10 PP; 10 CLAIMS)

PATENT (NO, DATE): EP 1348831A 1 20031001

APPLICATION (NO, DATE): 20021104

PRIORITY (NO, DATE): US 102995 20020321

PUBLICATION YEAR: 2003

IPC CODE: E21B-033/13

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

Storable water- **microsphere** suspensions for use in well cements are basically comprised of water, **microspheres**, and an effective amount of a suspending agent selected from microfine or colloidal materials and gel-forming polymers. The suspensions are mixed with a well cement composition, and the composition is then introduced into a well and allowed to set

16/7/10

DIALOG(R)File 987:TULSA (Petroleum Abs)

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01085665 PETROLEUM ABSTRACTS NO.: 823903

**EFFECT OF MIXING ON PROPERTIES OF LIGHTWEIGHT CEMENT SLURRIES WITH ADDITIONS OF ALUMINOSILICATE MICROSPHERES**

BELEI I I; KONOVALOV V S; YANKEVICH V F

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 12, PP 15-18, DEC 2002 (ISSN 01303872; 3 REFS; IN RUSSIAN)

2002

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

The practice of using lightweight cement slurries with additions of ash aluminosilicate hollow **microspheres** (LCSAMS) has increased considerably at Far North fields. Investigations made it possible to refine the composition of LCSAMS for cementing surface, intermediate, and production casings at the Urengoi, Zapolyarnoe, and Yamburg gas-condensate fields, with respect to selecting the optimal concentration of calcium chloride in the mixing liquid depending on the actual time of the cementing process and to recommending the experimental industrial use of LCSAMS with a sodium chloride set accelerator

16/7/11

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01085655 PETROLEUM ABSTRACTS NO.: 823893

**CORROSION OF GLASS MICROSPHERES IN HARDENED CEMENT**

ORESHKIN D V; BELOUSOV G A

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 12, PP 18-21, DEC 2002 (ISSN 01303872; 15 REFS; IN RUSSIAN)

2002

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

Investigations have established that corrosion of hollow glass **microspheres** occurs inside damaged or broken **microspheres**. As microstructural investigations in hardened cement with hollow glass **microspheres** treated with sizing (gamma)-aminopropyltriethoxysilane showed, there are only a few (several percent) such **microspheres**, which cannot reduce the reliability of such materials. Whole **microspheres** fringed by pores and uniformly distributed throughout the volume, creating a cellular structure of the hardened cement, were not corroded 13 yr after formation. This is also supported by organosilicon sizing, which coats the **microspheres**

16/7/12

DIALOG(R) File 987:TULSA (Petroleum Abs)

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01085089 PETROLEUM ABSTRACTS NO.: 823327

**LIGHTWEIGHT CEMENTING MATERIALS**

ORESHKIN D V; PERVUSHIN G N; BELYAEV K V

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 11, PP 21-23, NOV 2002 (ISSN 01303872; 7 REFS; IN RUSSIAN)

2002

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

A comparison is made of the energy parameters of fracture and properties of cementing materials with filter perlite, hollow glass **microspheres** (HGM), and HGMs with sizing (gamma)-aminopropylethoxysilane, without additions and with a superplasticizer. The use of HGMs makes it possible to obtain a material with a dense structure, but made porous by

water-impermeable hollow microspheres and with a low average density. Such a structure can provide durability of lightweight cementing material and heat insulation in the permafrost zone. Filter perlite can be used as a lightening filler for cementing shallow wells. The given fillers, including filter perlite, make it possible to reduce the average density of cement slurry to 1,250-1,300 kg/cu m with fulfillment of all necessary requirements

16/7/13

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01084574 PETROLEUM ABSTRACTS NO.: 822812

**HEAT-INSULATING MATERIAL WITH GLASS MICROSPHERES**

ORESHKIN D V

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 10, PP 29-35, OCT 2002 (ISSN 01303872; 4 REFS; IN RUSSIAN)

2002

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

Investigations have proved the possibility of obtaining a reliable well design for operating oil and gas wells under permafrost conditions. Passive heat insulation obtained on the basis of Portland cement, hollow glass microspheres (HGM), HGMs treated with sizing (gamma)-aminopropyltriethoxysilane, and superplasticizer S-3 keeps the frozen ground from thawing during the entire service life (30 yr). Moreover, the heat-insulating properties of such a design increase with time

16/7/14

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01083593 PETROLEUM ABSTRACTS NO.: 821831

**PROBLEMS OF STABILIZING WALLS DURING CONSTRUCTION OF OIL AND GAS WELLS**

ORESHKIN D V; YANKEVICH V F; PERVUSHIN G N

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NOS 7-8, PP 43-46, JULY-AUG 2002 (ISSN 01303872; 22 REFS; IN RUSSIAN)

2002

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

The construction of oil and gas wells is accomplished in several stages, the final and most essential of which is stabilizing the well walls, including cementing the casings. Reliable cementing of wells can be achieved by fulfilling the requirements of uniformity with respect to average density of the cement slurry, its spreadability, as well as the strength and its uniformity for set cement. Such requirements are met by using a stable filler (e.g., hollow glass microspheres (HGM)), which are superior to ceramic and polymer microspheres with respect to all indices. The use of HGMS makes it possible to obtain lightweight and ultralight cement slurries with a density of 1,000 kg/cu m, which can be used as an effective passive heat insulation to prevent warming of permafrost and to increase crack resistance considerably

16/7/15

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01083592 PETROLEUM ABSTRACTS NO.: 821830

USE OF LIGHTWEIGHT CEMENT SLURRIES FOR CEMENTING PRODUCING FORMATIONS  
YANKEVICH V F; KABANOV S I; VOLOSHIN V A; BELEI I I; KURDACHEV A I  
STROIT NEFT GAZ SKVAZHIN SUSHE MORE NOS 7-8, PP 40-43, JULY-AUG 2002  
(ISSN 01303872; IN RUSSIAN)  
2002

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

The En-Yahka area of the Urogenoi group of fields is characterized by the presence of anomalously low formation pressures. A technology was developed for cementing producing formations with the use of cement slurry lightened by hollow aluminosilicate microspheres, which is recommended for use in underpressure conditions as well as when constructing wells for underground gas storage. In this case, the use of microspheres makes it possible to vary the density of the cement slurry in a wide range from 800-1,600 kg/cu m. Furthermore, cement material with the addition of hollow aluminosilicate microspheres can be more resistant to erosion by formation fluids and saline water during well operation due to the high (at the level of ceramics) strength of the microspheres

16/7/16

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01072298 PETROLEUM ABSTRACTS NO.: 810536

METHODS OF CEMENTING PIPE IN WELL BORES AND LOW DENSITY CEMENT COMPOSITIONS THEREFOR

AUTHOR (INVENTOR): CHATTERJI J; CROMWELL R S; BRENNEIS D C; KING B J  
PATENT ASSIGNEE: HALLIBURTON ENERGY SERVICE  
PATENT INFORMATION: US 6516883B1, C 2/11/2003, F 7/25/2002 (APPL 205085)  
(C04B-024/42; E21B-033/14) (6 PP; 20 CLAIMS)  
PATENT (NO, DATE): US 6516883B 1 20030211  
APPLICATION (NO, DATE): US 205085 20020725  
PUBLICATION YEAR: 2003  
IPC CODE: C04B-024/42; E21B-033/14  
LANGUAGE: ENGLISH  
DOCUMENT TYPE: PATENT; P

Methods are provided for cementing pipe in well bores and low density cement compositions having enhanced compressive, tensile and bond strengths upon setting. The composition is comprised of a hydraulic cement, sufficient water to form a slurry, and hollow glass microsphere surfaces treated with a mixture of organosilane coupling agents present in an amount sufficient to produce a cement composition density in the range of from 6 to 12 lb/gal

16/7/17

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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01065807 PETROLEUM ABSTRACTS NO.: 804045

ULTRALIGHT HOLLOW GLASS SPHERES IMPROVE CEMENT SLURRY PERFORMANCE

SABINS F

CEMENTING SOLUTIONS INC

J PETROL TECHNOL V 55, NO 2, PP 26,28, FEB 2003 (ISSN 01492136; COLOR)

2003

ISSN: 0149-2136

LANGUAGE: ENGLISH

DOCUMENT TYPE: JOURNAL ARTICLE; J

In today's critical wells, the use of ultralightweight cementing systems could improve well performance by enhancing zone isolation and reducing cementing failures in surface pipe applications. For example, many shallow formations encountered in deepwater drilling operations, especially in the Gulf of Mexico, are characterized by unconsolidation and the presence of overpressured formation water. These formation conditions require strong, lightweight cements capable of controlling the formation fluid and withstanding cycling stresses associated with completion and production for extended periods of time. Recent technological advances have improved hollow glass spheres to be ultralightweight, while exhibiting excellent crush strengths. 3M has developed a chemically stable glass sphere composed of soda lime borosilicate. This composition makes the glass spheres nondeformable and insoluble in water. Additionally, as a controlled, engineered product, rather than a byproduct of coal burning, the glass **microspheres** have excellent performance consistency. Cementing solutions using 3M Scotchlite Glass Bubbles HGS Series (HGS) can improve performance of cement slurries in deepwater operations by reducing density and lowering viscosity. HGS hollow glass spheres can attain specific gravities of between 0.32 and 0.60, while resisting wellbore pressures between 2,000 and 18,000 psi. An added benefit is that HGS cement slurries are easy to design, mix, and pump

16/7/18

DIALOG(R)File 987:TULSA (Petroleum Abs)

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01058898 PETROLEUM ABSTRACTS NO.: 797136

EFFECT OF TEMPERATURE AND PRESSURE CONDITIONS ON THE FORMATION OF SET CEMENT IN A WELL

SHCHERBICH N E; BATALOV D M; KARMATSKIKH S A; KARGAPOLTSEVA L M

STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 12, PP 28-32, DEC 2001 (ISSN 01303872; 2 REFS; IN RUSSIAN)

2001

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

Experiments carried out under variable temperature and pressure conditions simulating cementing conditions showed that in the case of heating of cement **slurry** under the simultaneous effect of pressure up to 25.0 MPa and subsequent reduction to atmospheric pressure, restoration of the initial density of the **slurry** does not occur due to partial destruction of hollow aluminosilicate and glass **microspheres** used as lightening **additives** and dissolution of the gas phase. Volume compression of **slurry** can lead to its not rising to the given height, and therefore the results of the investigations obtained must be taken into account when calculating the required amount of **slurry** components

16/7/19

DIALOG(R)File 987:TULSA (Petroleum Abs)

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01042734 PETROLEUM ABSTRACTS NO.: 780972

USE OF HOLLOW GLASS BUBBLES AS A DENSITY REDUCING AGENT FOR DRILLING

WONG A; ARCO M J



3M CANADA; 3M USA  
9TH BIEN CADE/CAODC DRILLING CONF (CALGARY, ALBERTA, 10/22-24/2001) PROC  
PAP NO 2001-31, 2001 (AVAILABLE ON CD-ROM; COLOR; 14 PP; 11 REFS)  
2001

LANGUAGE: ENGLISH

DOCUMENT TYPE: MEETING PAPER TEXT; AT

The benefits of using hollow glass spheres (HGS) in low density drilling fluids in underpressurized or depleted reservoirs are disclosed. In laboratory, yard, and field trials, the operational benefits derived from usage of hollow glass **microspheres** to generate low density drilling fluids for the purpose of drilling reduced pressure zones have been demonstrated. Commercial usage has validated further the utility of HGS in achieving near-balanced or underbalanced drilling conditions in a cost effective manner. The learning curve process in going from the original low density fluid concept to the successful field and commercial application of HGS based low density drilling is described

16/7/20

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01031852 PETROLEUM ABSTRACTS NO.: 770640

**CONTROL OF THE TECHNOLOGICAL PROPERTIES OF CEMENT SLURRIES WHEN CEMENTING GAS WELLS**

REZCHIKOV G A; SHAMANOV S A; ROGOV A A; LUKYANOV V T  
STROIT NEFT GAZ SKVAZHIN SUSHE MORE NO 11, PP 14-17, NOV 2000 (ISSN  
01303872; IN RUSSIAN)

2000

ISSN: 0130-3872

LANGUAGE: RUSSIAN

DOCUMENT TYPE: JOURNAL ARTICLE; J

The required technological properties of cement slurries when cementing wells at fields of the Kuban Gas Industry enterprise are effectively obtained by using fly-ash from electrical power plants. A highly effective lightening **additive** that does not affect setting time and does not require increased water/mixture ratio is comprised of hollow aluminosilicate **microspheres**, which are spherical, gas-filled forms with a diameter of 20-300 ( $\mu$ m), wall thickness of 2-10 ( $\mu$ m), bulk density 415 kg/cu m, true density 620 kg cu m, and melting point 1,400(deg)C. The **microspheres** are contained in fly-ash; they separate out and appear in settling tanks. A technology of mixing multicomponent slurries directly at the drill site without preliminary preparation of the mixes has been developed and described

16/7/21

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01013741 PETROLEUM ABSTRACTS NO.: 752529

**WATER BASED WELLBORE FLUIDS**

AUTHOR (INVENTOR): BRADBURY A J; BRAND F  
PATENT ASSIGNEE: SOFITECH NV  
PATENT INFORMATION: GR BRIT 2351098A, P 12/20/2000, F 6/18/1999 (APPL  
9914351) (C09K-007/02; E21B-033/13; E21B-043/26) (19 PP; 9 CLAIMS)  
PATENT (NO, DATE): GB 2351098 A 20001220  
APPLICATION (NO, DATE): GB 9914351 19990618  
PUBLICATION YEAR: 2000  
IPC CODE: C09K-007/02; E21B-033/13; E21B-043/26

LANGUAGE: ENGLISH  
DOCUMENT TYPE: PATENT; P

A water-based wellbore fluid, e.g., a drilling, fracturing, gravel packing or workover fluid, comprises a fluid loss **additive** and a bridging material that are hydrophobic in nature, hydrophobically modified or oil wettable. The wellbore fluid generates an active filter cake that, once formed, is impermeable to an aqueous phase, thus reducing fluid loss and ensuring reduced damage to the formation, yet simultaneously is permeable to the back flow of hydrocarbons during a hydrocarbon recovery process. The fluid loss **additive** may be a hydrophobically modified starch, polyanionic cellulose, carboxymethylcellulose or poly-hydroxypropylmethacrylate. The bridging material may be hydrophobically coated calcium carbonates, zinc carbonates, barium carbonates, hematite, ilmenite, magnesium oxide, barite, silica particles, ~~clay~~ particles or **microspheres**. The bridging agent may also be 1-S-endo-borneol, camphor, beta carotene, lycophene, cholesterol, lanosterol or agnosterol

16/7/22

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01008345 PETROLEUM ABSTRACTS NO.: 747133

**NEW LIGHTWEIGHT FLUIDS FOR UNDERBALANCED DRILLING**

MCDONALD W J; COHEN J H; HIGHTOWER C M

MAURER ENGINEERING INC

FED ENERGY TECHNOL CENTER ET AL OIL & GAS CONF (DALLAS, TX, 6/28-30/1999)  
PROC (DOE/FETC REP NO 99-1103) 1999 (AVAILABLE ON CD-ROM; 10 PP; 9 REFS)  
1999

LANGUAGE: ENGLISH

DOCUMENT TYPE: GOVERNMENT REPORT; GR; MEETING PAPER TEXT; AT

The production of oil and gas in the U.S. is declining rapidly because the economics of many onshore fields are marginal due to high drilling costs and low well productivity. New reserves are located primarily in deep water where drilling costs are high and new technology must be developed. The objective of this project is to develop a new lightweight **drilling fluid additive** that will significantly reduce underbalanced and deep water drilling costs, and reduce formation damage during drilling and completion operations. The approach being taken is to utilize hollow glass **microspheres** to reduce the density of drilling fluids and overcome major problems encountered with current air/mist/foam drilling systems. The Russians initially used these **microspheres** in the 1970s to overcome severe lost circulation problems in the Ural Mt. This project consists of transferring the Russian technology to the U.S. and utilizing **microspheres** currently manufactured by 3M to reduce underbalanced drilling costs

16/7/23

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00978138 PETROLEUM ABSTRACTS NO.: 716371

**MICROBEADS AS LUBRICANT IN DRILLING MUDS USING A MODIFIED LUBRICITY TESTER**

SKALLE P; BACKE K R; LYOMOV S K; KILAAS L; DYRLI A D; SVEEN J

NORWEGIAN UNIV SCI TECHNOL; SINTEF

ANNU SPE TECH CONF (HOUSTON, 10/3-6/1999) PROC (DRILLING AND COMPLETION)  
PP 341-347, 1999 (SPE-56562; 10 REFS)

1999

REPORT NUMBER: SPE-56562

LANGUAGE: ENGLISH

DOCUMENT TYPE: MEETING PAPER TEXT; AT

Particles like barite and cuttings influence the friction properties of a mud. The standard API lubricity tester, however, cannot measure friction of fluids containing particles, and to overcome this problem it was modified with a cam setup. It was found that particles indeed alter the friction. Large beads are being used to reduce friction. They are, however, filtered out in the solids control equipment and to avoid this, smaller polymer **microbeads** which will pass unhindered are investigated. The **microbeads** reduce the friction in water-based muds with ca 40%, which is significantly better than 4 commercial lubricants

16/7/24

DIALOG(R)File 987:TULSA (Petroleum Abs)

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00972929 PETROLEUM ABSTRACTS NO.: 711162

**DRILLING AND CEMENTING THROUGH SHALLOW WATERFLOWS**

AUTHOR (INVENTOR): LAWSON J B; WHITFILL D L

PATENT ASSIGNEE: BAROID TECHNOLOGY INC

PATENT INFORMATION: WORLD 99/21933, P 5/6/1999, F 10/22/1998, PR US 10/24/1997 (APPL 60/063379) AND US 10/21/1998 (APPL 176180) (C09K-007/02; E21B-033/13; C04B-028/24) (22 PP; 21 CLAIMS)

PATENT (NO, DATE): WO 9921933 19990506

APPLICATION (NO, DATE): 19981022

PRIORITY (NO, DATE): US 60063379 19971024; US 176180 19981021

PUBLICATION YEAR: 1999

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

A **drilling fluid** system and method of using the fluid are described that provide stability to an unstable formation by placing a composition of materials in the area of instability to inhibit and prevent the flow of water into the borehole to inhibit formation fracture growth and to facilitate drilling and cementing operations. In one aspect, a composition is designed for drilling through shallow water flow (SWF) by combining a fibrous material, a silicate material, a graphite material, a light weighting material and a cementitious material, wherein the components of the composition work together to consolidate the filter cake and prevent the loss of fluids from the well bore. A **drilling fluid** for drilling through SWF comprises silicate, blast furnace slag, cellulose microfibers, hollow **microspheres** and graphite particles

16/7/25

DIALOG(R)File 987:TULSA (Petroleum Abs)

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00971791 PETROLEUM ABSTRACTS NO.: 710024

**A STUDY OF THE IMPROVEMENT ON RHEOLOGICAL CHARACTERIZATION BY REMOVING MICRO - PARTICLES IN MUD**

KONG Q X; ZHONG X; LONG A H; LIU R Y

DAQING PETROLEUM INST; DAQING PETROLEUM ADMIN

3RD INT MULTIPHASE FLOW & HEAT TRANSFER SYMP (XI'AN, CHINA, 9/19-21/1994) PROC PP 844-851; BEGELL HOUSE INC, 1994 (ISBN 1-56700-025-8; 3 REFS) 1994

ISBN: 1-56700-025-8

LANGUAGE: ENGLISH

DOCUMENT TYPE: MEETING PAPER TEXT; AT

According to the characterization of shale particles possessing negative

electric charges in drilling mud, a new method of cleaning out the finer particles from drilling muds and improving its rheological behavior has been developed based on the principle of electrophoresis. Laboratory experiment shows that this method can clean out the microparticles less than 40 (mu)m and that this method has unique effects especially for those particles less than 3 (mu)m which could not be separated by high speed centrifuge. The test also shows that adjusting factors, such as voltage, electrode gap and experimental time, can control the mass of removed particles and effectively improve the rheological behavior of muds

16/7/26

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00941176 PETROLEUM ABSTRACTS NO.: 680844

CEMENTING COMPOSITIONS AND THEIR APPLICATION FOR CEMENTING OIL WELLS AND THE LIKE (COMPOSITIONS DE CIMENTATION ET APPLICATION DE CES COMPOSITIONS POUR LA CIMENTATION DES PUITS PETROLIERS OU ANALOGUES)

AUTHOR (INVENTOR): VILLAR J; BARET J F; MICHAUX M

PATENT ASSIGNEE: DOWELL SCHLUMBERGER SA

PATENT INFORMATION: FR 2749843, C 12/19/97, F 6/18/96 (APPL 9607554) (C04B-028/06; E21B-033/13; E21B-033/14; C04B-111/74; C04B-111/76) BULL OFFIC PROPRIETE IND (FR) NO 51, P 67, 12/19/97 (ISSN 07507650; IN FRENCH; ABSTRACT ONLY) (AO)

PATENT (NO, DATE): FR 2749843 19971219

APPLICATION (NO, DATE): FR 9607554 19960618

PUBLICATION YEAR: 1997

IPC CODE: C04B-028/06; E21B-033/13; E21B-033/14; C04B-111/74; C04B-111/76  
ISSN: 0750-7650

LANGUAGE: FRENCH

DOCUMENT TYPE: PATENT; P; ABSTRACT ONLY; AO

A well cementing composition has as its base a hydraulic aluminate cement, consisting of fine particles, hollow microspheres, and water in an amount such that the porosity ranges between 25 and 50%, as well as a dispersant, an aluminate-cement setting accelerator, and optionally other conventional additives. The composition is used mainly for cementing conductor pipes in arctic zones or in deep-water wells. (Original not available from T.U)

16/7/27

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00931337 PETROLEUM ABSTRACTS NO.: 671005

CEMENTING COMPOSITIONS AND APPLICATION OF SUCH COMPOSITIONS TO CEMENTING OIL (OR SIMILAR) WELLS

AUTHOR (INVENTOR): VILLAR J; BARET J F; MICHAUX M; DARGOUD B

PATENT ASSIGNEE: SOFITECH NV

PATENT INFORMATION: EUROPE 814067, P 12/29/97, F 6/17/97, PR FR 6/18/96 (APPL 9607544) AND FR 2/12/97 (APPL 9701849) (C04B-028/06; C04B-038/00; E21B-033/13) (18 PP; 17 CLAIMS)

PATENT (NO, DATE): EP 814067 19971229

APPLICATION (NO, DATE): 19970617

PRIORITY (NO, DATE): FR 9607544 19960618; FR 9701849 19970212

PUBLICATION YEAR: 1997

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

A cement composition for cementing an oil or gas well is based on

aluminous hydraulic cement, fine particles, hollow microspheres, water in a quantity such that the porosity is in the range of 25 to 50%, a dispersing agent, a setting accelerator for the cement and, optionally, other conventional additives. The cement composition is of particular application to cementing conductor pipes in Arctic zones or in deep-water wells. The solids mixture comprise a medium component containing at least one aluminous hydraulic cement, fine particles and a light material. The solids mixture comprises, by volume, up to 45% of medium component, to 25% fine particles and to 65% hollow microspheres. The fine particles can be selected from ground quartz or glass, finely ground calcium carbonate, microsilica, carbon black, iron oxide dust, red mud or screened fly ash, and styrene-butadiene latex

16/7/28

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00930362 PETROLEUM ABSTRACTS NO.: 670030

STUDY OF HIGH-TEMPERATURE LIGHTWEIGHT CEMENT SLURRY WITH SILICA FUME  
LIAO G

SOUTHWEST PETROLEUM INST

J SOUTHWEST PETROL INST V 19, NO 2, PP 5A-6A, 68-72, MAY 1997 (ISSN 10002634; 7 REFS; IN CHINESE)  
1997

ISSN: 1000-2634

LANGUAGE: CHINESE

DOCUMENT TYPE: JOURNAL ARTICLE; J

A cement slurry with a density of 1.5 cu cm was prepared using class-G oil well cement with silica fume as a thermostabilizer and microsphere as lightweight admixture. After curing at 45(deg)C and atmospheric pressure for 48 hr, the cement slurry displayed a compressive strength of 15 MPa; the water loss (at 7 MPa for 30 min) was less than 250 mL and no free water was observed. After curing at 350(deg)C and 20 MPa for 3 days, the cement slurry had a compressive strength of more than 10 MPa. Such a temperature-resistant, lightweight cement slurry can be used for well cementing in low-pressure, viscous oil reservoirs planned for thermal recovery to considerably reduce the high temperature-induced strength decline of the cement and prolong the life span of the producing well

16/7/29

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00912072 PETROLEUM ABSTRACTS NO.: 657471

APPLICATION OF MICROSPHERES TO IN SITU SEPARATION OF WATER AND OIL

AUTHOR (INVENTOR): GLEADALL G B; HARMS D K; CROOKS J C; CROOKS D

PATENT INFORMATION: CAN 2148968, P 11/10/96, F 5/9/95 (APPL 2148968)  
(E21B-033/13) (4 PP; 4 CLAIMS)

PATENT (NO, DATE): CA 2148968 19961110

APPLICATION (NO, DATE): CA 2148968 19950509

PUBLICATION YEAR: 1996

IPC CODE: E21B-033/13

LANGUAGE: ENGLISH

DOCUMENT TYPE: PATENT; P

A water shutoff method is described which involves injecting a fluid into the producing formation to create a barrier between the oil and the water. The fluid must have a density matched to the conditions of the formation so as to float on the water and to sink in the oil. The fluid will harden into

an impermeable barrier which will prevent the flow of water upward through it. The barrier may be formed of lightweight cement created through the addition of low density **microspheres** that meet the required strength criterion. The concept is to form an impermeable boundary between the oil and the water. This happens at the water/oil interface zone. Through high-pressure injection, the cement can be forced into the formation and allowed to settle into the correct position, after which the cement hardens into the impermeable barrier

16/7/30

DIALOG(R)File 987:TULSA (Petroleum Abs)  
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00899498 PETROLEUM ABSTRACTS NO.: 644897

**RECENT ADVANCES IN THE DEVELOPMENT OF LIGHTWEIGHT CO2-RESISTANT WELL CEMENTS**

KUKACKA L E; SUGAMA T

BROOKHAVEN NATIONAL LAB

BROOKHAVEN NAT LAB REP NO BNL-62607 (DE96007741) (1995) (1 MICROFICHE WITH 10 PP; 5 REFS)

1995

LANGUAGE: ENGLISH

DOCUMENT TYPE: GOVERNMENT REPORT; GR

Regardless of the properties of the cured material, the practical use of advanced cementitious materials for geothermal well completions depends primarily upon the ability to predictably extend the thickening times for the precursor slurries at elevated temperatures to times sufficient to permit conventional placement. Ongoing work at Brookhaven National Laboratory, conducted with assistance from the geothermal industry, indicates that lightweight (< 1.3 g/cc) calcium phosphate cement slurries being developed as CO2-resistant well completion materials can be conventionally pumped at temperatures > 100(deg)C without the addition of retarding admixtures. These slurries consist of mullite-shelled hollow **microspheres**, calcium aluminate cements and polybasic sodium phosphate. When cured in hydrothermal environments, the slurries yield high strength, low permeability cements which bond well to steel casing. Two compositional factors that affect the thickening times were identified. One is the calcium aluminate cement species that serve as the base reagent in the **slurry** formulation, and the other is the rate of hydrothermal reaction between the **microspheres** and the polybasic sodium phosphate solution

16/7/31

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00883731 PETROLEUM ABSTRACTS NO.: 629130

**LIGHTWEIGHT CO2 RESISTANT CEMENTS FOR GEOTHERMAL WELL COMPLETIONS**

KUKACKA L E; SUGAMA T

BROOKHAVEN NATIONAL LAB

BROOKHAVEN NAT LAB REP NO BNL-61259 (DE95005965) (1995) (1 MICROFICHE WITH 6 PP; 6 REFS)

1995

LANGUAGE: ENGLISH

DOCUMENT TYPE: GOVERNMENT REPORT; GR

Materials formed by acid-base reactions between calcium aluminate compounds and phosphate-containing solutions yield high strength, low permeability, and CO2-resistant cements when cured in hydrothermal environments. The cementing formulations are pumpable at temperatures up to

150(deg)C, thereby making their use for well completions technically feasible. The addition of hollow aluminosilicate microspheres to the uncured matrix constituents yields slurries with densities as low as ca 1.2 g/cc which cure to produce materials with properties meeting the criteria for well cementing. These formulations also exhibit low rates of carbonation. Laboratory characterization is nearing completion, engineering scale-up is underway, and plans for field testing in a variety of geothermal fluids are being made

16/7/32

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00869414 PETROLEUM ABSTRACTS NO.: 614813

**PRACTICES AND UNDERSTANDING OF CEMENTING IN COALBED METHANE GAS WELL**

DUAN D; XIA H; HUANG R; WANG H

PETROL DRILLING TECH V 23, NO 1, PP 39-40,55,62, MARCH 1995 (ISSN 10010890; IN CHINESE)  
1995

ISSN: 1001-0890

LANGUAGE: CHINESE

DOCUMENT TYPE: JOURNAL ARTICLE; J

During the last 5 yr, plug flow cementing technology and micro - bead low density slurry cementing technology have obtained successful results in 12 coalbed methane gas wells in Huainan, Anyang, and Liulin areas. Cementing quality was checked in all wells and 78% achieved excellent quality. The effects of cement slurry yield value and plastic viscosity on the design of cementing operations are discussed, and 5 low density cement slurry formulas are given

16/7/33

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00863431 PETROLEUM ABSTRACTS NO.: 608830

**DEVELOPMENT OF STABLE LIGHT WEIGHT CEMENT SLURRIES FOR CEMENTATION OF WELLS WITH SUB-HYDROSTATIC PRESSURES**

SINHA A K; SIROHIA K; BHATIA P

INDIA OIL & NAT GAS CORP

1ST INDIA OIL & NATUR GAS CORP LTD ET AL INT PETROL CONF (PETROTECH 95) (NEW DELHI, INDIA, 1/9-12/95) PROC V 3, PP 89-92, 1995 (ISBN 81-7018-842-3) 1995

ISBN: 81-7018-842-3

LANGUAGE: ENGLISH

DOCUMENT TYPE: MEETING PAPER TEXT; AT

Stable lightweight cement slurries have been designed for primary cementing of subhydrostatic reservoirs using high strength microspheres with varying combinations of bentonite and calcium chloride. These slurries exhibit adequate compressive strength and other required properties for a successful cement job in subhydrostatic formations

16/7/34

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00815386 PETROLEUM ABSTRACTS NO.: 560785

**STUDY ON THE STABILITY OF LOW DENSITY CEMENT WITH HOLLOW MICROSPHERE**

MA H  
DRILLING FLUID COMPLETION FLUID V 10, NO 1, PP 61-65,76, JAN 1993 (ISSN  
10015620; IN CHINESE)  
1993  
ISSN: 1001-5620  
LANGUAGE: CHINESE  
DOCUMENT TYPE: JOURNAL ARTICLE; J

The instability of low density cement with hollow **microspheres** results from the lower plastic viscosity and yield point of the cement **slurry**. Tests indicate that the plastic viscosity and yield point of the cement **slurry** must be over 40 mPa.s and 6 Pa, respectively, to improve the cement quality and eliminate fluid channelling

16/7/35  
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00815355 PETROLEUM ABSTRACTS NO.: 560754  
**WATER-BASED DRILLING SOLUTION - CONTAINS CLAY, SPECIFIED STABILISER, PLASTIC MICROSPHERES MADE OF PHENOL-FORMALDEHYDE RESIN AND WATER**  
PATENT ASSIGNEE: BASHKIR OIL IND RES INST  
PATENT INFORMATION: USSR 1724672-A1, P 4/7/92, F 9/1/89 (APPL 4733895)  
(C09K-007/02) SOVIET PAT ABSTR NO 9312, P 2-H, 5/12/93 (IN RUSSIAN; ABSTRACT ONLY) (AO)  
PATENT (NO, DATE): SU 1724672-A 19920407  
APPLICATION (NO, DATE): SU 4733895 19890901  
PUBLICATION YEAR: 1992  
IPC CODE: C09K-007/02  
LANGUAGE: RUSSIAN  
DOCUMENT TYPE: PATENT; P; ABSTRACT ONLY; AO

The solution contains (in wt.%): clay 5-15, stabiliser 0.5-1.5, plastic **microspheres** made of phenol-formaldehyde resin 1.3 and balance water. Carboxymetyl cellulose is used as a stabiliser. Plastic **microspheres** are obtained by atomising drying the composition containing (in wt.%): gas-generating reagent 1-3 and balance phenol-formaldehyde resin. **Microspheres** are currently used in production of foamed plastics and lightening fillers for drilling and plugging solutions. Drilling solution is prepared by mixing bentonite with water for 1 hr. to full dissolution of clay, adding stabiliser, mixing for another 0.5 hr. adding plastic **microspheres** and final mixing for 20 min. Tests show that the proposed drilling solution removes 95.3-96.2% of drilling **sludge**. The shear coefficient of formed clay crust is 0.212-0.231 against 0.998 for the known solution, i.e., proposed solution has increased anti-seizing properties. This is achieved owing to the presence of plastic **microspheres**, acting as micro-ball bearings and preventing seizing of drilling system. USE/ADVANTAGE - As a drilling solution for drilling oil and gas wells. Improved drilling parameters are obtained owing to increased **sludge** removal efficiency and improved anti-seizing properties of clay crust. (c1993 Derwent Publications Ltd.) (Original patent not available from T.U

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00811147 PETROLEUM ABSTRACTS NO.: 556546  
**METHOD USING MICRO - SPHERE CEMENT SLURRIES FOR DEVIATED WELLS**  
AUTHOR (INVENTOR): CARPENTER R B  
PATENT ASSIGNEE: ATLANTIC RICHFIELD CO